

Applicant : Hisashi Ohtani
Serial No. : 09/389,393
Filed : September 3, 1999
Page : 3 of 15

Attorney's Docket No.: 07977-204002 / US3480D1

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A semiconductor device comprising:

a first conductive layer over an insulating surface;

a second conductive layer on said first conductive layer wherein a width of the second conductive layer is narrower than that of the first conductive layer;

an insulating film over the second conductive layer;

a semiconductor region over the insulating film, the semiconductor region comprising a source region, a drain region, a channel region, and a pair of regions between the channel region and the source and drain regions, said pair of regions formed of a same material as said channel region wherein each of said pair of regions has a first portion contiguous to the channel region and a second portion contiguous to the source or drain regions;

~~a gate insulating film formed over said semiconductor region;~~

~~a first conductive layer formed over the channel region with the gate insulating film interposed therebetween; and~~

~~a second conductive layer formed on said first conductive layer wherein a width of the first conductive layer is narrower than that of the second conductive layer;~~

wherein the ~~second~~ first conductive layer extends beyond side edges of the ~~first~~ second conductive layer and extending portions of the ~~second~~ first conductive layer overlap the first portions of said pair of regions while the second portions are not overlapped by said ~~second~~ first conductive layer.

44. (Currently Amended) A semiconductor device comprising:

a first conductive layer over an insulating surface;

a second conductive layer on said first conductive layer wherein a width of the second conductive layer is narrower than that of the first conductive layer;

Applicant : Hisashi Ohtani
Serial No. : 09/389,393
Filed : September 3, 1999
Page : 4 of 15

Attorney's Docket No.: 07977-204002 / US3480D1

an insulating film over the second conductive layer;

a semiconductor film region over the insulating film, the semiconductor region comprising a source region, a drain region, a channel region ~~formed on an insulating surface~~, and a pair of regions between the channel region and the source and drain regions, said pair of regions formed of a same material as said channel region wherein each of said pair of regions has a first portion contiguous to the channel region and a second portion contiguous to the source or drain regions;

~~a gate insulating film formed over the semiconductor region;~~

~~a first conductive layer formed over the channel region with the gate insulating film interposed therebetween; and~~

~~a second conductive layer formed on the first conductive layer wherein a width of the first conductive layer is narrower than that of the second conductive layer,~~

wherein the ~~second~~ first conductive layer extends beyond side edges of the ~~first~~ second conductive layer and extending portions of the ~~second~~ first conductive layer overlap the first portions of said pair of regions while the second portions are not overlapped by said ~~second~~ first conductive layer, and

wherein the first conductive layer and the second conductive layer are different material each other.

45. (Currently Amended) A semiconductor device comprising:

a first conductive layer over an insulating surface;

a second conductive layer on said first conductive layer wherein a width of the second conductive layer is narrower than that of the first conductive layer;

an insulating film over the second conductive layer;

a semiconductor region over the insulating film, the semiconductor region comprising a source region, a drain region, a channel region, and a pair of regions between the channel region and the source and drain regions, said pair of regions formed of a same material as said channel

Applicant : Hisashi Ohtani
Serial No. : 09/389,393
Filed : September 3, 1999
Page : 5 of 15

Attorney's Docket No.: 07977-204002 / US3480D1

region wherein each of said pair of regions has a first portion contiguous to the channel region and a second portion contiguous to the source or drain regions;

~~a gate insulating film formed over the semiconductor region;~~

~~a first conductive layer formed over the channel region with the gate insulating film interposed therebetween; and~~

~~a second conductive layer formed on the first conductive layer wherein a width of the first conductive layer is narrower than that of the second conductive layer;~~

wherein the ~~second~~ first conductive layer extends beyond side edges of the ~~first~~ second conductive layer and extending portions of the ~~second~~ first conductive layer overlap the first portions of said pair of regions while the second portions are not overlapped by said ~~second~~ first conductive layer, and

wherein a distance between the first portion and the source or drain region is larger than a thickness of the ~~first~~ second conductive layer.

46. (Currently Amended) A semiconductor device comprising:

a first conductive layer over an insulating surface;

a second conductive layer on said first conductive layer wherein a width of the second conductive layer is narrower than that of the first conductive layer;

an insulating film over the second conductive layer;

a semiconductor film region over the insulating film, the semiconductor region comprising a source region, a drain region, a channel region formed on an insulating surface, and a pair of regions between the channel region and the source and drain regions, said pair of regions formed of a same material as said channel region wherein each of said pair of regions has a first portion contiguous to the channel region and a second portion contiguous to the source or drain regions;

~~a gate insulating film formed over the semiconductor region;~~

~~a first conductive layer formed over the channel region with the gate insulating film interposed therebetween; and~~

Applicant : Hisashi Ohtani
Serial No. : 09/389,393
Filed : September 3, 1999
Page : 6 of 15

Attorney's Docket No.: 07977-204002 / US3480D1

~~a second conductive layer formed on the first conductive layer wherein a width of the first conductive layer is narrower than that of the second conductive layer;~~

wherein the ~~second~~ first conductive layer extends beyond side edges of the ~~first~~ second conductive layer and extending portions of the ~~second~~ first conductive layer overlap the first portions of said pair of regions while the second portions are not overlapped by said ~~second~~ first conductive layer, and

wherein a distance between the first portion and the source or drain region is larger than a thickness of the first conductive layer.

47. (Currently Amended) A semiconductor device comprising:

a first conductive layer over an insulating surface;

a second conductive layer on said first conductive layer wherein a width of the second conductive layer is narrower than that of the first conductive layer;

an insulating film over the second conductive layer;

a semiconductor region over the insulating film, the semiconductor region comprising a source region, a drain region, a channel region, and a pair of regions between the channel region and the source and drain regions, said pair of regions formed of a same material as said channel region wherein each of said pair of regions has a first portion contiguous to the channel region and a second portion contiguous to the source or drain regions;

~~a gate insulating film formed over the semiconductor region;~~

~~a first conductive layer formed over the channel region with the gate insulating film interposed therebetween; and~~

~~a second conductive layer formed on the first conductive layer wherein a width of the first conductive layer is narrower than that of the second conductive layer;~~

wherein the ~~second~~ first conductive layer extends beyond side edges of the ~~first~~ second conductive layer and extending portions of the ~~second~~ first conductive layer overlap the first portions of said pair of regions while the second portions are not overlapped by said ~~second~~ first conductive layer, and

Applicant : Hisashi Ohtani
Serial No. : 09/389,393
Filed : September 3, 1999
Page : 7 of 15

Attorney's Docket No.: 07977-204002 / US3480D1

wherein a distance between the first portion and the source or drain region is equal to or less than a thickness of the ~~first~~ second conductive layer.

48. (Currently Amended) A semiconductor device comprising:
a first conductive layer over an insulating surface;
a second conductive layer on said first conductive layer wherein a width of the second
conductive layer is narrower than that of the first conductive layer;
an insulating film over the second conductive layer;
a semiconductor film region over the insulating film, the semiconductor region
comprising a source region, a drain region, a channel region formed on an insulating surface, and
a pair of regions between the channel region and the source and drain regions, said pair of
regions formed of a same material as said channel region wherein each of said pair of regions has
a first portion contiguous to the channel region and a second portion contiguous to the source or
drain regions;
~~a gate insulating film formed over the semiconductor region;~~
~~a first conductive layer formed over the channel region with the gate insulating film~~
~~interposed therebetween; and~~
~~a second conductive layer formed on the first conductive layer wherein a width of the~~
~~first conductive layer is narrower than that of the second conductive layer;~~
wherein the ~~second~~ first conductive layer extends beyond side edges of the ~~first~~ second
conductive layer and extending portions of the ~~second~~ first conductive layer overlap the first
portions of said pair of regions while the second portions are not overlapped by said ~~second~~ first
conductive layer, and
wherein a distance between the first portion and the source or drain region is equal to or
less than a thickness of the ~~first~~ second conductive layer.

49. (Previously presented) A semiconductor device according to claim 1,

Applicant : Hisashi Ohtani
Serial No. : 09/389,393
Filed : September 3, 1999
Page : 8 of 15

Attorney's Docket No.: 07977-204002 / US3480D1

wherein an anodic oxide layer is formed on at least side surface of the first conductive layer and side surface of the second conductive layer.

50. (Previously presented) A semiconductor device according to claim 44,
wherein an anodic oxide layer is formed on at least side surface of the first conductive layer and side surface of the second conductive layer.

51. (Previously presented) A semiconductor device according to claim 45,
wherein an anodic oxide layer is formed on at least side surfaces of the first conductive layer and side surfaces of the second conductive layer.

52. (Previously presented) A semiconductor device according to claim 46,
wherein an anodic oxide layer is formed on at least side surfaces of the first conductive layer and side surfaces of the second conductive layer.

53. (Previously presented) A semiconductor device according to claim 47,
wherein an anodic oxide layer is formed on at least side surfaces of the first conductive layer and side surfaces of the second conductive layer.

54. (Previously presented) A semiconductor device according to claim 48,
wherein an anodic oxide layer is formed on at least side surfaces of the first conductive layer and side surfaces of the second conductive layer.

55. (Previously presented) A semiconductor device according to claims 1,
wherein each of the first and second conductive layers comprises a material selected from the group consisting of molybdenum, tantalum, aluminum, chromium, nickel, zirconium, titanium, palladium, silver, copper, and cobalt.

Applicant : Hisashi Ohtani
Serial No. : 09/389,393
Filed : September 3, 1999
Page : 9 of 15

Attorney's Docket No.: 07977-204002 / US3480D1

56. (Previously presented) A semiconductor device according to claims 44, wherein each of the first and second conductive layers comprises a material selected from the group consisting of molybdenum, tantalum, aluminum, chromium, nickel, zirconium, titanium, palladium, silver, copper, and cobalt.

57. (Previously presented) A semiconductor device according to claims 45, wherein each of the first and second conductive layers comprises a material selected from the group consisting of molybdenum, tantalum, aluminum, chromium, nickel, zirconium, titanium, palladium, silver, copper, and cobalt.

58. (Previously presented) A semiconductor device according to claims 46, wherein each of the first and second conductive layers comprises a material selected from the group consisting of molybdenum, tantalum, aluminum, chromium, nickel, zirconium, titanium, palladium, silver, copper, and cobalt.

59. (Previously presented) A semiconductor device according to claims 47, wherein each of the first and second conductive layers comprises a material selected from the group consisting of molybdenum, tantalum, aluminum, chromium, nickel, zirconium, titanium, palladium, silver, copper, and cobalt.

60. (Previously presented) A semiconductor device according to claims 48, wherein each of the first and second conductive layers comprises a material selected from the group consisting of molybdenum, tantalum, aluminum, chromium, nickel, zirconium, titanium, palladium, silver, copper, and cobalt.

61. (Previously presented) A semiconductor device according to claim 1, wherein a distance between the first portion and the source or drain region is 500. to 1000..

Applicant : Hisashi Ohtani
Serial No. : 09/389,393
Filed : September 3, 1999
Page : 10 of 15

Attorney's Docket No.: 07977-204002 / US3480D1

62. (Previously presented) A semiconductor device according to claim 44,
wherein a distance between the first portion and the source or drain region is 500. to
1000..

63. (Previously presented) A semiconductor device according to claim 45,
wherein a distance between the first portion and the source or drain region is 500. to
1000..

64. (Previously presented) A semiconductor device according to claim 46,
wherein a distance between the first portion and the source or drain region is 500. to
1000..

65. (Previously presented) A semiconductor device according to claim 47,
wherein a distance between the first portion and the source or drain region is 500. to
1000..

66. (Previously presented) A semiconductor device according to claim 48,
wherein a distance between the first portion and the source or drain region is 500. to
1000..

67. (Currently Amended) A semiconductor device according to claim 1, wherein said
gate insulating film comprises silicon oxide.

68. (Currently Amended) A semiconductor device according to claim 44, wherein said
gate insulating film comprises silicon oxide.

Applicant : Hisashi Ohtani
Serial No. : 09/389,393
Filed : September 3, 1999
Page : 11 of 15

Attorney's Docket No.: 07977-204002 / US3480D1

69. (Currently Amended) A semiconductor device according to claim 45, wherein said gate insulating film comprises silicon oxide.

70. (Currently Amended) A semiconductor device according to claim 46, wherein said gate insulating film comprises silicon oxide.

71. (Currently Amended) A semiconductor device according to claim 47, wherein said gate insulating film comprises silicon oxide.

72. (Currently Amended) A semiconductor device according to claim 48, wherein said gate insulating film comprises silicon oxide.

73. (Currently Amended) A semiconductor device according to claim 1, wherein said ~~first~~ second conductive layer comprises tantalum and said ~~second~~ first conductive layer comprises aluminum.

74. (Currently Amended) A semiconductor device according to claim 44, wherein said ~~first~~ second conductive layer comprises tantalum and said ~~second~~ first conductive layer comprises aluminum.

75. (Currently Amended) A semiconductor device according to claim 45, wherein said ~~first~~ second conductive layer comprises tantalum and said ~~second~~ first conductive layer comprises aluminum.

76. (Currently Amended) A semiconductor device according to claim 46, wherein said ~~first~~ second conductive layer comprises tantalum and said ~~second~~ first conductive layer comprises aluminum.

Applicant : Hisashi Ohtani
Serial No. : 09/389,393
Filed : September 3, 1999
Page : 12 of 15

Attorney's Docket No.: 07977-204002 / US3480D1

77. (Currently Amended) A semiconductor device according to claim 47, wherein said ~~first~~ second conductive layer comprises tantalum and said ~~second~~ first conductive layer comprises aluminum.

78. (Currently Amended) A semiconductor device according to claim 48, wherein said ~~first~~ second conductive layer comprises tantalum and said ~~second~~ first conductive layer comprises aluminum.

79. (Previously presented) A semiconductor device according to claim 1, wherein the semiconductor region comprises crystalline silicon.

80. (Previously presented) A semiconductor device according to claim 44, wherein the semiconductor film comprises crystalline silicon.

81. (Previously presented) A semiconductor device according to claim 45, wherein the semiconductor region comprises crystalline silicon.

82. (Previously presented) A semiconductor device according to claim 46, wherein the semiconductor film comprises crystalline silicon.

83. (Previously presented) A semiconductor device according to claim 47, wherein the semiconductor region comprises crystalline silicon.

84. (Previously presented) A semiconductor device according to claim 48, wherein the semiconductor film comprises crystalline silicon.